

# **What Did Jon Say About How to Handling the Addressing Challenges That Would Face Us One Day?**

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NANOG 44

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# A Little Background

- ◆ IPng WG established in fall 1994
- ◆ Multihoming arising
- ◆ Concerns about routing scalability
- ◆ A few proposals on IPv6 address allocations were put on the table

Interim Report on  
**Evaluation of Different Addressing  
Proposals**

by Lixia Zhang

The story

- the problem: routing too flat
- solution: add more hierarchies in addressing & routing
- how: different opinions, different proposals
- action item from IAB:
  - set up a study group to evaluate each proposal
- held the first meeting at Danvers IETF, continued with weekly conference calls since then, expect to wrap up by Dallas IETF

## **Group members:**

David Clark  
Steve Deering  
Peter Ford  
Jon Postel  
Yakov Rekhter  
Lixia Zhang (organizer)

## **Disclaimer:**

- This is a report on work in progress
- This report does not represent IAB positions
- Individual group members hold different positions on various technical issues

Jon cared a lot about  
getting IPv6 right,  
and getting it out

# Noted Proposals on the Table

- ◆ Following IPv4 CIDR model: provider-based addressing

- ◆ Clark proposal (a.k.a. 8+8)

To: `ipng@sunroof.Eng.Sun.COM`

Subject: (IPng) A thought on addressing

From: David Clark <`ddc@lcs.mit.edu`>

Date: Wed, 11 Jan 95 14:01:09 -0500

Folks,

This is a comment on how addresses might be used in IPv6

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- ◆ Deering proposal (Metro-based addressing)

<ftp://ftp.ietf.org/ietf-online-proceedings/95jul/presentations/allocation/deering.slides.ps>

- ◆ (map-and-encap idea around, RFC1955 in June'96)

## From Jon

- ◆ “This is really attempting to solve a routing problem.
- ◆ Yakov raised the issue of current dependency between IP address and transport layer IDs  
“Transport layer ID is not an issue that we need be concerned with for now. Once we decide what to do for IP addresses, then transport people can easily figure out how they may use the address.”

## From Jon (II)

- ◆ “We must avoid circular dependencies;
- ◆ “we must define a substrate of the system that can operate without DNS. ...
- ◆ “we must not depend on DNS to bootstrap the core operation of the system”



## From Jon (III)

- ◆ It was important keep the uniqueness property of IP addresses
- ◆ It was important to keep user packet addresses intact (from source to destination; encapsulation is OK)

# **IETF33 Plenary Summary: IP Address Allocation**

**(July 1995)**

- ◆ up to now, the IP address has served as an invariant, unique identification for the end host. TCP design makes use of this assumption, so do many other protocols and applications.
- ◆ As a result, nobody today has a complete list of all the possible places in the protocol architecture that have the IP address hard wired or embedded in it.

# **IETF33 Plenary Summary: IP Address Allocation**

**(July 1995)**

- ◆ Therefore, contradicting Peter(Ford)'s assumption that most customers do not care about permanent IP addresses, dynamically changing addresses, as required by provider-based assignment, changes the architecture we used to know and causes serious problems at the user ends.

13 years have passed  
How well does the above  
still apply/not apply today?